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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/437,246	11/10/99	SHINADA	S 056708

MMC1/1025  
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EXAMINER

NGHIEM, M

ART UNIT	PAPER NUMBER
2861	

**DATE MAILED:** 10/25/00

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No. <b>09/437,246</b>	Applicant(s) <b>Shinada et al.</b>
	Examiner <b>Michael Nghiem</b>	Group Art Unit <b>2861</b>

Responsive to communication(s) filed on Aug 29, 2000

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 1-49 is/are pending in the application.

Of the above, claim(s) 43-45 is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 1-26, 28, 33-36, and 46-49 is/are rejected.

Claim(s) 27, 29-32, and 37-42 is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). 5

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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**DETAILED ACTION**

***Election/Restriction***

1. Applicant's election without traverse of Group I (claims 1-44 and 46-49) and Species I (Figs. 1-19c and 25a-d) in Paper No. 7 is acknowledged. Since claims 1-42 and 46-49 are readable on the figures of the elected species, claims 43-45 are withdrawn from further consideration.

***Specification***

2. The disclosure is objected to because of the following informalities:  
- "38" (page 30, line 12) should be -- 38a --.  
Appropriate correction is required.

***Drawings***

3. Figures 27 and 28 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

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4. The drawings are objected to under 37 CFR 1.83(a) because they fail to show through bore (38a) (page 23, line 19) as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

5. The drawings are objected to because:

- the lead line for reference number 8 is pointing to the wrong element.
- reference number 10 (e.g. Figs. 3, 19a) has no lead line.

Correction is required.

### ***Claim Objections***

6. Claims 10, 33, and 36 are objected to because of the following informalities:

- “and” (line 1) should be -- or --.

7. Claims 37-42 are objected to under 37 CFR 1.75© as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

Appropriate correction is required.

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***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and  
distinctly claiming the subject matter which the applicant regards as his invention.

Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

“Said spherical surface” lacks antecedent basis.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-26, 28, 33-36, and 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinada et al. (US 5,790,158) in view of Barinaga et al. (US 5,777,646) and Seccombe et al. (US 5,650,811).

Shinada et al. discloses the following claimed features of the invention:

- an ink cartridge (Fig. 15a) for a printing apparatus providing ink to a print head through a tapered ink supply needle (14, Fig. 3) and removably attached to the print head (Fig. 2), comprising:
  - an ink chamber (511) for containing ink;
  - an ink supply port (513) for supplying ink from said ink chamber to the print head of the printing apparatus, said ink supply port comprising an external opening (lower opening of 513, Fig. 15a);
  - a packing member (530) provided in said ink supply port, forming an ink channel (Fig. 19a) for allowing a flow of ink, said packing member sealing the ink supply needle (Fig. 19a) of the printing apparatus by fitting therewith; and
  - a porous member (520) accommodated in said ink chamber for absorbing ink;
  - said packing member comprising a hole (hole occupied by 14, Fig. 19a).

However, Shinada et al. does not disclose the following claimed features:

- a valve device contained in said ink supply port elastically abutting against said packing member, said valve device selectively opening and closing said ink channel in conjunction with the ink

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supply needle, said valve device being urged by the ink supply needle of the printing apparatus to open said ink channel at a same time when the ink supply needle is sealed by said packing member,

- said valve device comes to close said ink channel of said packing member before the ink supply needle of the printing apparatus is completely detached from said packing member,
- a protruding rim surrounding said hole,
- said packing member comprises a first surface facing said ink chamber formed with a cylindrical recess having a diameter acceptable to receive a part of said valve device at said first surface,
- said hole of said packing member having a diameter smaller than said diameter of said cylindrical recess at said first surface,
- said valve device comprising a valve body comprising a substantially flat surface with which the ink supply needle contacts,
- a guide body for guiding said valve body to slide substantially vertically with respect to said packing member,
- an elastic member always urging said valve member toward said packing member,
- said valve member comprises a support structure for supporting said elastic member,
- said support structure is radially shaped,
- said valve member comprises a flange for supporting said elastic member,
- said packing member comprises a second surface facing said external opening with a tapered portion tapered from said external opening toward said ink chamber at said second surface, for guiding the ink supply needle of the printing apparatus,

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- said packing member is made of an elastic material and provided with a lubricant coat at least at an area with which the ink supply needle contacts,
- said valve body comprises:
  - a sealing portion for closing said ink channel of said packing member when said valve device contacts with said packing member;
  - an ink channel allowing ink to pass therethrough when said valve body is urged to come out of contact with said packing member by the ink supply needle of the printing apparatus,
- a part of said ink channel of said valve body is formed by cutting off said sealing portion,
- said guide body comprises:
  - an axial portion being connected to said valve body; and
  - a guide block formed at an end of said axial portion opposite to said valve body, said guide block guiding said valve body to slide substantially vertically with respect to said packing member,
- said axial portion of said guide body is formed as one unit with said valve body,
- a guide unit provided in said ink supply port to receive said guide block of said guide body,
- said valve body and said guide body are separately formed and fixed to each other by fixing means,
- said guide body is made of an elastic material,
- said valve body of said valve device comprises a surface facing said packing member formed with a convex surface,

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- said spherical surface of said valve device has a diameter of curvature larger than a diameter of a widest part of said valve body.

However, Barinaga et al. discloses a valve device (102) contained in said ink supply port (28) elastically abutting against said packing member (104), said valve device selectively opening and closing said ink channel in conjunction with the ink supply needle, said valve device being urged by the ink supply needle of the printing apparatus to open said ink channel at a same time when the ink supply needle is sealed by said packing member (Fig. 9), said valve device comes to close said ink channel of said packing member before the ink supply needle of the printing apparatus is completely detached from said packing member (suggested by Fig. 9), said packing member comprising a hole (hole occupied by 14, Fig. 19a), a protruding rim (protrusion of 104, Fig. 2) surrounding said hole, said packing member comprises a first surface facing said ink chamber formed with a cylindrical recess (recess occupied by 102, Fig. 2) having a diameter acceptable to receive a part of said valve device at said first surface (Fig. 2), said hole of said packing member having a diameter smaller than said diameter of said cylindrical recess at said first surface (slit of 104 is smaller than recess, Fig. 2), an elastic member (100) always urging said valve member toward said packing member, said valve member comprises a support structure for supporting said elastic member (surface of 102 supporting 100, Fig. 2), said support structure is radially shaped (shape of 102, Fig. 2), said valve body comprises a sealing portion (bottom surface of 102, Fig. 2) for closing said ink channel of said packing member when said valve device contacts with said packing member; and an ink channel (channel when 102 is urged upward by 162, Fig. 9)

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allowing ink to pass therethrough when said valve body is urged to come out of contact with said packing member by the ink supply needle of the printing apparatus (Fig. 9), a guide unit (passage of 28, Fig. 2) provided in said ink supply port to receive said guide block of said guide body (Fig. 2), said valve body of said valve device comprises a surface facing said packing member formed with a convex surface (surface of 102, Fig. 2), for the purpose of opening and closing fluid communication between a printer and a cartridge, while

Seccombe et al. discloses a guide body (body of 84, Fig. 9) for guiding a valve body (84) to slide substantially vertically with respect to a packing member (structure of 88, Fig. 9), said valve member comprises a flange (90) for the purpose of supporting an elastic member (82), a sealing portion of said valve body comprises a substantially flat surface (bottom surface of 90 is flat, Fig. 9), said guide body comprises an axial portion (middle portion of 84, Fig. 9) being connected to said valve body; and a guide block (opening of 88, Fig. 9) formed at an end of said axial portion opposite to said valve body, said guide block guiding said valve body to slide substantially vertically with respect to said packing member (Fig. 9), said axial portion of said guide body is formed as one unit with said valve body (Fig. 9), said guide body is made of an elastic material (suggested by "diaphragm", column 12, line 56), for the purpose of controlling the back pressure of a printhead.

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Furthermore, it is noted that changes in size and shape of disclosed elements (shape of the packing member, size of curvature of the spherical surface of the valve device) merely involve routine skill in the art. MPEP 2144.04.

Even though Shinada et al. as modified does not disclose a valve body and a guide body being separately formed and fixed to each other by fixing means, it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Moreover, even though Shinada et al. as modified does not disclose a part of said ink channel of said valve body is formed by cutting off said sealing portion, it has been held that determination of patentability of a product is based on the product itself and does not depend on its method of production. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985).

Finally, it would be obvious to provide the packing member of Shinada et al. as modified with a lubricant coat at least at an area with which the ink supply needle contacts, since it is well-known in the art that lubricant reduces frictional contact between two elements. MPEP 2144.03.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide Shinada et al. with the valve devices as disclosed by Barinaga et al.

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and Seccombe et al. for the purposes of opening and closing fluid communication between a printer and a cartridge and controlling the back pressure of a printhead.

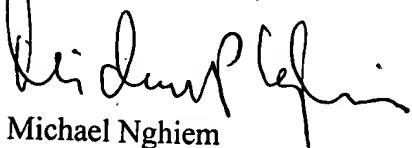
***Allowable Subject Matter***

10. Claims 27 and 29-32 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is an examiner's statement of reasons for allowance:

The combination as claimed wherein said guide body is formed with a groove extending from said guide block through said axial portion, said surface, facing said packing member, of said valve device is formed with a protruding portion to contact with a tip end of the ink supply needle or with a notch is not disclosed or suggested by the prior arts of record.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Nghiem whose telephone number is (703) 306-3445. An inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist at (703) 308-0956.

  
Michael Nghiem

October 19, 2000